

WHAT IS CLAIMED IS:

- 1 1. A device for monitoring moisture in an absorbent fiber, the device
2 comprising:
3 a sensor device coupled to the absorbent fiber, the sensor device for
4 detecting a designated moisture level; and
5 an alert device coupled to the sensor device, the alert device for notifying
6 a user that the designated moisture level has been detected.
- 1 2. The device of claim 1 wherein the sensor device and the alert
2 device are formed in a microchip.
- 1 3. The device of claim 1 further comprising
2 at least one amplifier coupled to the sensor device, the amplifier for
3 amplifying a sensor signal received from the sensor device.
- 1 4. The device of claim 1 further comprising
2 at least one power source coupled to the sensor device and the alert device.
- 1 5. The device of claim 1 further comprising
2 at least one processor coupled to the amplifier and a monitor device.
- 1 6. The device of claim 1 further comprising
2 an encased cylinder,
3 wherein a first portion of the absorbent fiber is located within the encased
4 cylinder, and a second portion is located outside the encased cylinder.
- 1 7. The device of claim 1 wherein the absorbent fiber is included in an
2 article of clothing.
- 1 8. The device of claim 1 wherein the absorbent fiber is included in a
2 diaper.
- 1 9. The device of claim 1 wherein the absorbent fiber is included in a
2 tampon.

1 10. The device of claim 1 wherein the absorbent fiber is included in a
2 smart bandage.

1 11. The device of claim 1 wherein the sensor device sends a signal to
2 the alert device upon sensing the designated moisture level.

1 12. A moisture monitoring system, comprising:
2 an absorbent fiber;
3 a sensor device, coupled to the absorbent fiber, the sensor device for
4 detecting moisture absorbed by the absorbent fiber;
5 an alert device, coupled to the sensor device, for receiving a signal from
6 the sensor device when the sensor device detects a specified moisture level in the
7 absorbent fiber;
8 at least one amplifier coupled to the sensor device, the amplifier for
9 increasing a level of the signal; and
10 at least one power source coupled the sensor and to the alert device.

1 13. The moisture monitoring system of claim 12 further comprising
2 at least one processor coupled to the amplifier and the alert device.

1 14. The moisture monitoring system of claim 12 wherein the absorbent
2 fiber is woven into an article of clothing.

1 15. The moisture monitoring system of claim 12 wherein the absorbent
2 fiber is woven into a diaper.

1 16. The moisture monitoring system of claim 12 wherein the absorbent
2 fiber is included in a tampon.

1 17. The moisture monitoring system of claim 12 wherein the absorbent
2 fiber is included in a smart bandage.

1 18. A method of monitoring moisture levels, the method comprising:
2 providing an absorbent fiber for absorbing moisture;
3 detecting when the absorbent fiber absorbs a designated moisture level;

4 responsive thereof, alerting a user that the designated moisture level has
5 been detected.

1 19. The method of claim 18 wherein the absorbent fiber is included in
2 a smart bandage.

1 20. The method of claim 18 wherein the absorbent fiber is included in
2 an article of clothing.

1 21. A moisture monitoring device, comprising:
2 a capillary material having a hollow interior;
3 a material inside the hollow interior, wherein the material is affected in a
4 detectable way by presence of a liquid; and
5 a sensor for detecting said effect of the liquid on the material.

1 22. The moisture monitoring device of claim 21 wherein the material is
2 capable of emitting a gas when the liquid is detected.

1 23. The monitoring device of claim 21 wherein the material is capable
2 of changing its color when the liquid is detected.

1 24. A method of detecting target molecules of a liquid or gas, the
2 method comprising:
3 providing a capillary fiber;
4 providing receptor molecules coupled to a surface of said capillary fiber;
5 absorbing target molecules of the liquid or gas to provide a target/receptor
6 molecule combination; and
7 using a chemical or physical property of the target/receptor molecule
8 combination to change a physical property of the capillary fiber, to detect presence of the
9 target molecules.

1 25. A method of detecting liquid, the method comprising:
2 providing a capillary material;
3 using the capillary material to absorb the liquid;
4 detecting a change in material characteristic while the liquid is absorbed
5 by the capillary material; and
6 generating a signal in response to said change in characteristic.

- 1 26. The method of claim 25 wherein the material characteristic is size.
- 1 27. The method of claim 25 wherein the material characteristic is
2 color.
- 1 28. The method of claim 25 wherein the material characteristic is
2 conductivity.
- 1 29. The method of claim 25 wherein the material characteristic is
2 capacitance.
- 1 30. The method of claim 25 wherein the material characteristic is
2 weight.
- 1 31. A moisture monitoring device, comprising:
2 a base;
3 an arm flexibly attached to the base;
4 a capillary material disposed between the arm and the base, wherein the
5 capillary material is capable of expanding upon detecting a liquid, to push the arm away
6 from the base, to generate a signal responsive thereof.
- 1 32. The device of claim 31 further comprising:
2 a first conductor coupled to the base and a meter; and
3 a second conductor coupled to the arm and the meter, wherein signals can
4 be propagated through the first conductor and the second conductor to the meter.
- 1 33. A method of detecting liquid, the method comprising:
2 providing a capillary fiber;
3 impregnating a material unto the surface of the capillary fiber; and
4 detecting a change in the material when the material is contacted by the
5 liquid.
- 1 34. The method of claim 33 wherein the change is from solid to liquid.
- 1 35. The method of claim 33 wherein the change is a color change.
- 1 36. A method of detecting liquid, the method comprising:

- 2 detecting a change in size when the liquid is absorbed by a capillary
- 3 material; and
- 4 generating a signal responsive to said change in size of the capillary
- 5 material.